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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,627	01/13/2004	Rene Gerrit Heideman	145-001US	2466
22897	7590	08/09/2005	EXAMINER	
DEMONT & BREYER, LLC SUITE 250 100 COMMONS WAY HOLMDEL, NJ 07733			PAK, SUNG H	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/756,627	Applicant(s) HEIDEMAN ET AL.	
	Examiner Sung H. Pak	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>062404</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Species I in the reply filed on 7/8/2005 is acknowledged.

### ***Information Disclosure Statement***

Information disclosure statement filed 6/24/2004 has been considered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7, 9-20, 23-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (US 6,826,345 B1) in view of Roberts (US 2002/0122651 A1).

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Zhong discloses an optical device with limitations set forth in the claims, including: two of the three layers having stress of same sign ('14' and '18' in Fig. 1; see column 5 lines 64- column 6 line 11: since both '14' and '18' may be made of silicon nitride, they will have the stress of same sign); interposed layer having stress of opposite sign relative to the two layers ('16' Fig. 1; column 5 lines 47-51); wherein at least one of the two layers is silicon nitride (column 5 line 64- column 6 line 11); wherein the interposed layer is silicon dioxide (column 5 line 64-column 6 line 11); wherein the physical attributes of the layers are selected to provide modal birefringence of zero (column 4 lines 10-11);

wherein the reference further discloses steps of fabricating said optical device comprising steps of removing materials from said three layers (Figs. 2-6; column 5 lines 52-53).

However, Zhong does not explicitly teach the layer having an opposite sign stress surrounding a waveguiding core layer. However, such feature is well known in the art, for example, as taught by Roberts (Fig. 5). This feature is considered advantageous and desirable in the art because it allows effective stress balancing for maximal birefringence compensation. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Zhong to have a surrounding layer as taught by Roberts.

Claims 8, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (US 6,826,345 B1) in view of Roberts (US 2002/0122651 A1) as applied to claims above, and in further view of Inoue et al (US 2003/0152353A1).

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Zhong, in view of Roberts, renders all the claimed limitations obvious as discussed above, except it does not explicitly teach the use of electro-optically active material disposed on a layer, wherein the electro-optically active material is zinc-oxide.

On the other hand, the use of electro-optically active material such as zinc-oxide for applying variable stress on a waveguiding structure is known in the art, for example, as taught by Inoue (Fig. 8, paragraph 0046). The use of electro-optically active material is considered advantageous and desirable in the art because it allows application of variable amount of stress, which allows fine-tuning of optical transmission characteristics of the waveguiding device. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Zhong to have electro-optically active material as taught by Inoue.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,501,895 B1, US 2002/0048443A1, and US 2003/0190131A1 disclose optical waveguide structures having birefringence-modifying stress applied thereon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak  
Patent Examiner  
Art Unit 2874

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